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ABSTRACT

The purpose of this project was to accomplish two goals: (1) to provide the school district of Lancaster (Pennsylvania) with an inservice program for teachers in the bilingual education program; and (2) to develop a computer-assisted bilingual education teacher training program. Seven two-day workshops were held. In addition to providing inservice training, these workshops collected and experimented with materials for the computer-assisted (CAI) bilingual education teacher training program. A two-week summer workshop was also held for about 20 participants, for two purposes: (1) to review and assist with the development of the CAI program, and (2) to participate in seminars and independent study in bilingual education. During the workshops, changes were observed in teacher behavior, attitudes, classroom procedures, and curriculum. The CAI bilingual education teacher training program was designed for preservice and inservice teachers and for administrators and other teachers working with bilingual communities. It contains four units: (1) language teaching in bilingual education, (2) culture and community in bilingual education, (3) curriculum and instruction in bilingual education, and (4) assessment in bilingual education. (Author/CFM)

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A COMPUTER-ASSISTED BILINGUAL/BICULTURAL TEACHER EDUCATION PROGRAM (SPANISH/ENGLISH)

(OEG-0-74-3696)

Submitted to

The U.S. Office of Education
Office of Bilingual Education
Washington, D.C.

Final Report

Prepared by

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COMPUTER ASSISTED BILINGUAL/BICULTURAL EDUCATION
TEACHER EDUCATION PROGRAM (SPANISH/ENGLISH)

ABSTRACT

The purpose of this project was to accomplish two goals:

1. To provide the School District of Lancaster with an inservice program for teachers in the Bilingual Education Program.
2. To develop a Computer-Assisted Bilingual Education Teacher Training Program.

The program which had originally been proposed as a five-year program was reduced to a one-year program with a six-month extension.

The on-site and summer workshops were extremely successful with observable changes in teacher behavior, attitudes, classroom procedures, and curriculum.

A Computer-Assisted Bilingual Education Teacher Training Program has been developed containing four units: (1) Language Teaching in Bilingual Education, (2) Culture and Community in Bilingual Education, (3) Curriculum and Instruction in Bilingual Education, and (4) Assessment in Bilingual Education. Funds were not made available for the formative and summative evaluation of this promising and innovative program.

TABLE OF CONTENTS

	Page No.
COMPUTER ASSISTED BILINGUAL/BICULTURAL EDUCATION TEACHER EDUCATION PROGRAM (SPANISH/ENGLISH)	ii
LIST OF FIGURES	v
ACKNOWLEDGMENTS	vi
CHAPTER ONE: PROBLEMS, ACTIVITIES AND IMPLICATIONS	1
Introduction and Overview	1
Population	1
Needs	2
The Lancaster Bilingual Education Program	3
Goals of the Lancaster Bilingual Education Program	5
Instructional Component Goals	5
Curriculum and Materials Component Goals	6
Administrative Component Goals	6
Staff Development Component Goals	6
Parent-Community Component Goals	7
Goals of the Bilingual Education Teacher Training Program	7
CHAPTER TWO: PENN STATE-LANCASTER BILINGUAL EDUCATION TEACHER TRAINING WORKSHOPS	9
Purpose	9
Nature of the Workshops	9
The Schedule and Content of Workshops	10
Academic Credit for Workshops	13
Task Assignments and Personnel	14
Evaluation	15
Participant Response	15
Observed Changes	16
CHAPTER THREE: COMPUTER-ASSISTED BILINGUAL EDUCATION TEACHER TRAINING PROGRAM	18
Development and Course Description	18
Purpose of a Computer-Assisted Bilingual Education Teacher Training Program	18
Problems in Development	19
User Population	20
Computer-Assisted Instruction: Principles and Configuration	21
Refining Objectives and Instructional Methodology	23
Personal Qualities of Bilingual Teachers	25
Language Proficiency	26
Linguistics	26
Culture	27
Instructional Methods	28
Curriculum Utilization and Adaptation	30

CHAPTER THREE: (Cont'd)
Assessment 30
General 30
Language 31
Content 31
Self 31
School-Community Relations 32
Supervised Teaching 33
Final Developmental Outline and Procedures 33
Task Assignments and Personnel 36
Evaluation 39

CHAPTER FOUR: SUMMARY AND RECOMMENDATIONS . . . . . .
Summary 40
Some Positive Outcomes and Products 40
Some Recommendations 42

REFERENCES 43

APPENDIX A: Resumé of Results 44
APPENDIX B: A List of Changes in the Lancaster Bilingual Education Program 45

LIST OF FIGURES

Figure		Page
1	Configuration of the IBM 1500 Computer Assisted Instruction System with One Student Station	22
2	Bilingual Teacher Competencies - Developmental Core	24
3	Flowchart for a Model CAI Unit	35
4	Diagnostic Prescriptive Model of Teaching	37

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The following persons have made significant contributions to this project: Teresa Alemany, Eunice Askov, Jack Barnette, Walter Del Aguila, Ricardo Garcia, Robert Goslin, Zane Lubaus, Marilyn McDivitt, Consuelo Perignat, Carol Puhl, Jane Singh, Dean Tjosvold, Heidi Tollinche, and the staff of the Computer Assisted Instruction Laboratory including Keith Hall, Director and Michael Szabo, Assistant Director.

CHAPTER ONE

PROBLEMS, ACTIVITIES AND IMPLICATIONS

Introduction and Overview

In February, 1974, The Pennsylvania State University joined with the School District of Lancaster, Pennsylvania, in submitting a proposal to the U. S. Office of Education, Title VII, Bilingual Education Act. The Pennsylvania State University's portion of the proposal was: (1) to upgrade the ongoing bilingual education teacher training programs in the School District of Lancaster, and (2) to develop a four-unit, Computer-Assisted Bilingual/Bicultural Teaching Education Program.

Population

About 2,000 Puerto Rican children and students attend school in the School District of Lancaster. Most, if not all, of the 605 teachers in the district have contact with some of these students; approximately fifty are directly involved in the bilingual education of these children. The native language (L1) of these children is Spanish; the language of the school (L2) is English. The native culture (C1) is Puerto Rican; the culture of the school (C2) is Anglo. Throughout this report the terms Spanish and English will refer to native and second language, respectively; and the terms Puerto Rican and Anglo will refer to the island and the mainland cultures, respectively.

The children in the School District of Lancaster's bilingual education program lead bilingual/bicultural lives as they move back and forth into Puerto Rican and Anglo environments. These children are

expected to develop into productive, self-respecting citizens of the Commonwealth of Puerto Rico and the United States of America. The School District of Lancaster Bilingual Education Program provides a means for these children to be educated for their bilingual/bicultural society as provided by the Bilingual Education Act which the U. S. Congress enacted on January 2, 1968, P. I. 90-247, Title VII, E.S.E.A. This legislation was enacted in recognition of the special education needs of large numbers of children of limited English speaking ability in the United States. Bilingual education is defined as the use of two languages, one of which is English, the medium of instruction.

The Penn State-Lancaster Bilingual Education Teacher Education Program was intended to increase the bilingual teaching skills and to enhance the instructional component for the population described in this section.

Needs

The Bilingual Education Teacher Training Program as described in this final report addressed itself to specific major staff development needs as determined by the School District of Lancaster Bilingual Education Program staff. The Program had requirements for:

1. Evaluation of students' progress in the acquisition of Spanish and English language skills and concept attainment in subject matter taught in Spanish and English.
2. Staff development to meet the diverse needs of students and bilingual classrooms.

3. Acquisition, development, and modification of bilingual curriculum and instructional procedures.

Other needs identified by the School District of Lancaster staff for the Lancaster Bilingual Education Teacher Training Program were:

1. Understanding of linguistic differences.
2. Understanding of cultural differences.
3. Teaching of basic language skills, listening, speaking, reading, and writing, in Spanish and English.
4. Evaluation of student progress.
5. Bilingual teaching strategies in subject areas.
6. Individualization of subject areas.
7. English as a second language methodologies.
8. Teaching basic reading skills in Spanish and English.
9. Using aides in bilingual classrooms.

The Lancaster Bilingual Education Program. Special emphasis in this program had been placed on goal setting for the instructional component of the Bilingual Education Program and the evaluation of student progress in this program. The School District of Lancaster Bilingual Education Program can be classified as a transitional type program, which means that when a student can handle his academic course work in English with a 70-85% degree of accuracy he is gradually placed into all English speaking classes. The student is still given instruction, however, in English as a second language (ESL) and Spanish for Spanish speakers (SSS). The student may also request to take some subject area course work in bilingual classrooms.

The School District of Lancaster Bilingual Education Program is flexible in the instructional model employed. The four models used in this program are:

1. Team Teaching Model: The team teaching model uses the services of two teachers or two teachers and an aide, who join efforts in providing students with a full program of instruction.
2. Departmentalized Model: The departmentalized model is used mainly in seventh and eighth grades and in high school. Some elementary schools use this model for some subjects in grades five and six. In this model, the children go to different rooms for each subject area. Where possible, students in the bilingual education program are integrated with English speaking children.
3. Self-Contained Model: The self-contained model features one teacher or one teacher and one aide, and one group of students in one learning environment for the entire school day. Students in this model receive all of their instruction in all subject areas from one teacher.
4. Integrated Full-Day Model: The integrated full-day model is a transitional, "pull out" approach in which pupils from several classes are given the opportunity of special instruction by a bilingual teacher. This procedure is largely used in the high school. The special bilingual instruction is not to exceed 50% of the total instruction time.

Time allocation for linguistic balance varies from 70% of instruction in the first language and 30% in the second language in the first year or until the student is ready to move on to a new balance, to a 60-40 ratio during the second year or until the student is ready to move to a new balance, and then to a 50-50 balance ratio during the third year or when the child is ready for this balance. Accuracy and mastery expectations also increase from a 70% level during the first year to an 80% to 85% level in the third year.

Goals of the Lancaster Bilingual Education Program

Before a Bilingual Education Teacher Training Program could be established for the School District of Lancaster, the goals of the program had to be established. These goals tend to be classified under: (1) instructional component goals, (2) curriculum and materials development goals, (3) administrative component goals, (4) staff development component goals, (5) parent-community component goals which are outlined as follows:

Instructional Component Goals

1. Pupils will master listening, speaking, reading, and writing skills in Spanish and English.
2. Pupils will demonstrate reading ability and subject area concept attainment in Spanish and English.
3. Pupils will acquire a knowledge and an appreciation of Puerto Rican and Anglo communities.
4. Pupils will develop positive attitudes toward self, school, home, and community.

Curriculum and Materials Component Goals

1. Curriculum materials will consider the unique linguistic needs and differing performance levels of all pupils.
2. Curriculum materials will emphasize bilingual concept attainment in content areas (social studies, science, mathematics, language arts).
3. Curriculum materials will consider cultural distinctions.
4. Curriculum materials will promote positive self-image.

Administrative Component Goals

1. Administrative staff will facilitate and implement program, compensating for differing language dominance levels of pupils.
2. Administrative staff will coordinate and supervise program including the collection and dissemination of program information.
3. Administrative staff will provide opportunities for local inservice and staff development.
4. Administrative staff will demonstrate a positive attitude toward bilingual education, pupils, staff, and community.

Staff Development Component Goals

1. Staff who are aware of linguistic needs of pupils and community will be recruited or trained.
2. Staff will participate in ongoing inservice and opportunities for university level bilingual education course work leading to professional graduate degree.

3. Staff will promote cultural awareness of both Puerto Rican and Anglo cultural groups.
4. Staff will reflect positive attitudes toward bilingual education, pupils, and community.

Parent-Community Component Goals

1. Parents will become aware of child's linguistic needs.
2. Parents will participate in bilingual center activities, advisory council, field trips and special programs.
3. Parents will demonstrate a positive attitude toward cultural heritage.
4. Parents will reflect a positive attitude toward themselves, children, bilingual schools, teachers, and community.

Goals of the Bilingual Education Teacher Training Program

With the goals of the School District of Lancaster established, it was possible to establish a Bilingual Education Teacher Training Program which would assist in the attainment of the district Bilingual Education goals. Two major goals were established:

1. To deliver to the bilingual and other teachers, administrators, and aides of the School District of Lancaster, a series of workshops to assist in the attainment of the:
   a. instructional component goals.
   b. curriculum and materials development goals.
   c. the parent-community component goals.
2. To develop a Computer-Assisted Bilingual/Bicultural Education Teacher Training Program for all teachers in the

School District of Lancaster as an introduction to bilingual education principles, practices, and materials.

Chapter II of this report will outline in detail Goal 1, the on-site Bilingual Education Teacher Training Workshops. Chapter III of this report will outline in detail Goal 2, the development of the Computer-Assisted Bilingual Education Teacher Training Program.

CHAPTER TWO

PENN STATE-LANCASTER BILINGUAL EDUCATION
TEACHER TRAINING WORKSHOPS

Purpose

The purpose of the Penn State-Lancaster Bilingual Education Teacher Training Workshops was two-fold: (1) to bring to the teacher, administrators, and aides of the School District of Lancaster specialists and university course credit in the domain of Bilingual Education; and (2) to assess, develop, and record various teacher training strategies and methods for the Lancaster Bilingual Education Program which were authored and programmed for dissemination via the Computer-Assisted Instruction.

Nature of the Workshops

There were basically two objectives of the workshops: (1) to assist the School District of Lancaster in meeting the needs of the Lancaster Bilingual Education Program, and (2) to collect and to experiment with materials which have been incorporated into the Penn State-Lancaster CAI Bilingual Education Teacher Training Program. Seven two-day workshops were held in Lancaster at the Price School, a bilingual school in the district.

Each of the seven, two-day workshops followed this time schedule:

Day One

10 a.m. to 1:30 p.m.: Travel and lunch, Penn State to Lancaster

1:30 p.m. to 3:30 p.m.: Preworkshop activities including: individual teacher conferences, classroom observations,

community and student interview, interviews with administrative staff, demonstrations, and information dissemination and gathering.

3:30 p.m. to 6:00 p.m.: Workshop which includes: presentations, discussions, demonstrations, application of concepts, planning and implementation.

6:00 p.m. to 7:00 p.m.: Group dinner and discussion.

7:00 p.m. to 9:30 p.m.: Workshop including: presentation, demonstration, discussion, application of concepts, planning for implementation, group work sessions.

Day Two

8:30 a.m. to 11:30 a.m.: Post workshop activities including: classroom implementation of curriculum materials, observation of classroom environments and teaching, parent-community involvement, and small group of teachers discussions.

11:30 a.m. to 3:00 p.m.: Lunch and travel from Lancaster to Penn State.

The Schedule and Content of Workshops

Dates	Content
I. October 23-24, 1974	Orientation to Bilingual Education. The Program Review. Evaluation of teacher, student, program.

Dates	Content
I. October 23-24, 1974 (Cont'd)	Observation of bilingual classroom teaching and environment.
II. November 20-21, 1974	Assessment: What bilingual teachers need to know about student progress in the program. How to evaluate student progress. Linguistics: Analyzing and understanding student language development. Needs assessment and systematic data collection.
III. December 11-12, 1974	Visit to The Pennsylvania State University Mobile CAI Laboratory in Harrisburg area. Unit studied: 1. Diagnostic and prescriptive teaching. 2. Language development and evaluation in early childhood.
IV. January 22-23, 1975	Teaching reading in Spanish. Teaching reading in English. Individualizing reading instruction. Establishing reading centers for reading skills. Testing bilingual reading skills.

Dates	Content
V. February 19-20, 1975	Assessment: Testing and observation of language dominance and maintenance in Spanish and English. ESL methodology reading, linguistics in teaching reading and writing.
VI. March 19-20, 1975	Cultural Pluralism: Principles and practices in the community.
VII. April 23-24, 1975	Cultural Pluralism: Principles and practices in the classroom.

The procedure for conducting the on-site workshops was for the Penn State University staff to arrive before lunch in Lancaster; have lunch; visit with teachers, the coordinator of the bilingual education program, administrators; and then set up workshop materials as necessary and as preplanned. The workshops lasted from 3:30 p.m. to 9:30 p.m. with an hour provided for dinner and informal discussion. The next day, the Penn State staff worked individually with teachers in their classrooms. The purpose of these visits was to help teachers with curriculum development in Spanish and English and to observe their instructional methods and strategies.

A two-week summer workshop was also held for about twenty of the participants at The Pennsylvania State University, University Park, during June 16 - June 27, 1975. The goals of this workshop were:

1. To review and to assist in the authoring of the CAI Bilingual/Bicultural Education Teacher Training Program.

2. To participate in seminars and independent study in Bilingual Education including the following:
   a. Micro-teaching using bilingual education classroom teaching techniques.
   b. Development of parallel curriculum in subject areas utilizing subject matter specialists.
   c. Cultural conversations in Spanish with adult informants.
   d. Review components of successful bilingual education programs.
   e. Teaching subject area concepts in Spanish and English.

The workshops made an effective contribution to the Computer-Assisted Bilingual/Bicultural Education Teacher Training Program as well as to the Bilingual Education Program of the School District of Lancaster.

The workshops were planned to meet the most immediate needs of the teachers which were: (1) language teaching methodology, (2) assessment of children's Spanish and English language acquisition and maintenance, (3) cultural understanding, (4) curriculum development in Spanish to parallel English curriculum, (5) instructional methodology in reading. The workshops also brought the bilingual teachers together as an integrated functioning unit.

Academic Credit for Workshops

Three hours of Pennsylvania State University Graduate credit (C & S 470, Workshop in Bilingual Education) were given for the success-

ful completion of the seven workshops at 5.5 contact hours per workshop, a total of 38.5 contact hours.

One hour of Pennsylvania State University Graduate credit was optimally contracted by participating teachers for a curriculum on testing project done in conjunction with the individualized pre- and post-workshop periods.

Two hours of Pennsylvania State University Graduate credit were obtained for the two-week summer workshop held on campus.

Thus, the total number of possible graduate credits earned by the bilingual teachers was six for the 1974-75 academic year.

Task Assignments and Personnel

The staff involved and the areas of interest for the seven on-site workshops and the two-week summer workshop included:

1. Language learning in bilingual education - Lester S. Golub, Professor of Language Education and Carol Puhl, Graduate Assistant.
2. Assessment in bilingual education - Jack Barnette, Assistant Professor of Education and Consuelo Perignat, Graduate Assistant.
3. Culture in bilingual education - Jane Singh, Associate Professor of Education and Ricardo Garcia, Graduate Assistant.
4. Instructional methods in reading Spanish and English - Eunice Askov, Associate Professor of Education, Zane Lubaus, Graduate Assistant and Lydia Mellinger, Bilingual Education Teacher.

5. Classroom environment in bilingual education - John Withall, Professor of Education and Dean Tjosvold, Assistant Professor of Education.
6. Information and Bibliography - Marilyn McDivitt, Graduate Assistant.
7. Program Coordinator - Lester S. Golub, Director, Bilingual Education Teacher Training Program and Walter Del Aguila, Graduate Assistant.
8. Spanish Language Specialist - John Dalbor, Professor of Spanish.

Evaluation

There were two ways of assessing the inservice on-site and the summer workshops conducted within the Penn State portion of the Penn State-Lancaster Bilingual Education Teacher Training Program. The first method was to ask the participant directly for his response; the other was to assess changes in classroom environment and classroom teaching. Both methods will be described in this section.

Participant Response. In order to effectively evaluate the in-service on-site and the summer workshops conducted for the Penn State-Lancaster Bilingual Education Teacher Training Program, an instrument comprised of seven questions was administered to persons who took part in the workshops. The questionnaire contained the following items:

1. List three aspects of the Penn State Bilingual Education Teacher Training that you liked.
2. List three aspects of the Penn State Bilingual Education Training that you disliked.

3. What are your suggestions for changes in conducting this program next year?
4. Are you satisfied with the course offerings?
5. What course would you suggest that will best suit the needs of our program?
6. What do you want the Penn State Bilingual Education Program to do in the way of testing?
7. Other comments on the program.

By and large, workshop participants suggested they were extremely satisfied with the Penn State Bilingual Education Teacher Training Program. The feeling most apparent was that the persons conducting the program were knowledgeable and were able to do it with a sensitive understanding and a friendly manner. The items most often listed as being unsatisfactory or those which were nominated for suggested changes in the future, included a request for more material, a request that workshops and materials be presented in other areas of bicultural education, and that the program be individualized.

A synopsis of the participants' comments to the seven questions listed above are contained in Appendix A.

Observed Changes. The assessment of the changes in classroom environment and classroom teaching were most impressive. As a result of the Lancaster Bilingual Education Program, the teachers involved in the training are now working as a cohesive group toward common goals and objectives which include the establishment of a Bilingual Curriculum Materials Center, the use of a Bilingual Curriculum Specialist and Bilingual counselors, and the increasing interest shown by the school

administration in maintaining a successful Bilingual Education Program. A summary of the seven most important changes in the Lancaster Bilingual Education Program, as a result of this project, can be seen in Appendix B.

CHAPTER THREE

COMPUTER-ASSISTED BILINGUAL EDUCATION TEACHER TRAINING PROGRAM

Development and Course Description

The development of a Computer-Assisted Bilingual/Bicultural Education Teacher Training Program was a major goal of the Penn State-Lancaster Bilingual Education Teacher Training Program. This developmental effort was intended to complement the on-site and summer workshops by providing a storage and retrieval system for the principles, practices, materials, curriculum, and evaluation procedures gathered and implemented during the workshops described in Chapter Two. Also, the Computer-Assisted Bilingual/Bicultural Education Teacher Training Program used the teachers in the School District of Lancaster Bilingual Education Program for the user population in the formative evaluation of the program. The balance of this chapter will describe the developmental effort needed in producing a Computer-Assisted Bilingual/Bicultural Education Teacher Training Program.

Purpose of a Computer-Assisted Bilingual Education Teacher Training Program

Unlike most teacher education programs which vanish when the staff contracted to teach these programs vanish, this computer-assisted instruction (CAI) program has been developed for and by the bilingual education teachers of the School District of Lancaster with the aid of the Pennsylvania State University staff. The program has been recorded for permanent use on computer disk, filmstrip, and audio tape.

Printed documentation of the course segments is available. This model computer-assisted bilingual education teacher training program has been developed specifically for the School District of Lancaster, but is also available anywhere on the continent through the use of Penn State's Mobile Computer Assisted Instruction Laboratories.

Problems in Development

The development of the Computer-Assisted Bilingual Education Teacher Training Program was proposed as a five-year development program. Less than four months after the first year of development was in operation, the director of the program learned that no further funds would be forthcoming for the five-year development cycle. The reason for this change was that the administrative School District of Lancaster had decided to draw upon its Title VII funds from the Lancaster-Lebanon Intermediate Unit 13. This Intermediate Unit was unable to obtain Title VII funds for further CAI development. The four CAI Bilingual Education Teacher Training units are the result of a concerted one-year effort rather than the originally proposed five-year effort.

Bilingual education is a new and uncharted program in American education. Any institution of higher education that attempts to train teachers in this area must be highly funded to "tool-up" for this purpose. Bilingual educators who represent the culture of the target student population must be obtained, courses must be developed, and existing faculty must be retained and encouraged to teach bilingually or at least side-by-side as bilingual graduate assistants. Time and money have not been available for this kind of retooling operation.

Puerto Rican bilingual education teachers have not always been willing to give up high paying jobs in urban areas such as New York or Philadelphia to come to the University unless they have a paid sabbatical leave to assist them. In short, the staff needed to develop the Computer-Assisted Bilingual/Bicultural Teacher Training Program was not always or easily accessible. These faculty members who did help develop the units for the program did it as an overload to their regular University teaching, advising, research, and service obligations.

A program as sensitive to the culture and community of the target population group as is bilingual education should be developed to a large extent on-site. Funds should have been made available, as requested, to bring a mobile CAI van to the School District of Lancaster where the bilingual teachers and program developers would have worked together on the formative evaluation and modification of the program.

In spite of these tremendous handicaps, this program has been developed which is targeted to become a three-credit, introductory, forty (40) hour course in Bilingual Education for Teachers.

User Population

The intended user population for this Computer-Assisted Bilingual Education Teacher Training Program includes: (1) preservice teachers who need an introduction to the principles and practices in bilingual education before doing intern teaching in bilingual classrooms; (2) inservice teachers who are being placed in bilingual classrooms after training and experience in all English speaking

classrooms, and (3) administrators and other teachers who work in bilingual communities and who will encounter bilingual children and students throughout the educational system.

Computer-Assisted Instruction: Principles and Configuration

The Pennsylvania State University's Computer Assisted Instruction Laboratory and the Mobile Computer Assisted Instruction Laboratories utilize the IBM 1500 Instructional System. The resident CAI Laboratory is located in the Chambers Building on the University Park Campus of The Pennsylvania State University. Each of the instructional stations contains a cathode ray tube display, a light pen, a typewriter keyboard, an audio/record unit, and an image projector unit (See Figure 1).

The cathode ray tube (CRT), a small television-like tube is the main interface unit between the computer and the student. On the CRT appears alphanumerical materials as well as graphics. A light pen is attached to the CRT and enables the student to respond and interact with the program emanating from the computer in the form of numbers, letters, figures, and graphics by touching the appropriate area on the screen. A typewriter keyboard is also attached to the CRT; as the student types his response to the program his answer appears simultaneously on the CRT. The student responses are matched against programmed responses with the correct feedback and branching routines given. The IBM 1512 image projector also presents course material in graphic form. The IBM 1506 audio play/record unit contains a four-track tape record head and prerecorded information is presented the

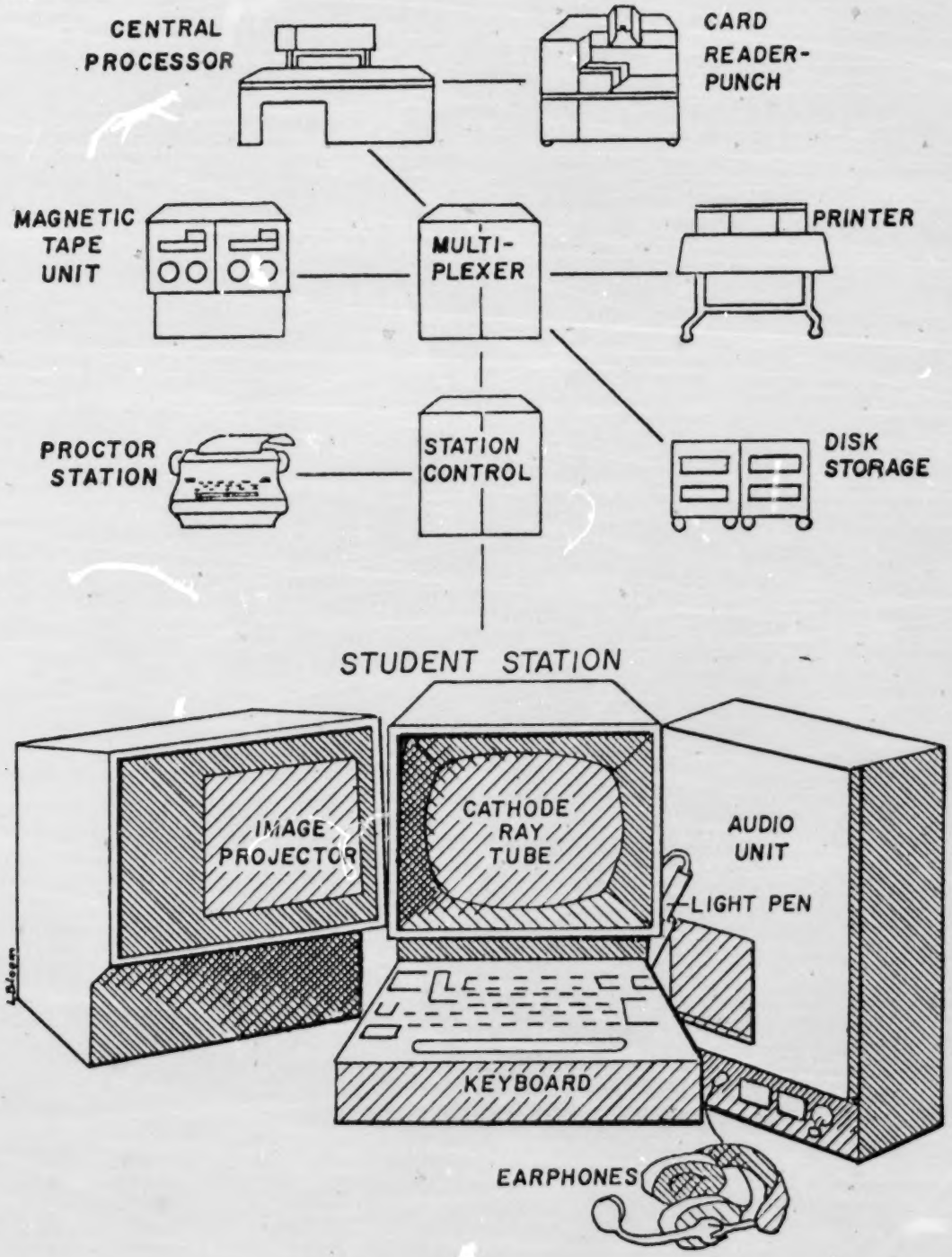


Figure 1. Configuration of the IBM 1500 Computer Assisted Instruction System With One Student Station

student through a head-set. The student can also record his response on one track and immediately listen and compare his response to a pre-recorded response.

The IBM 1500 System is essential to the student station. The IBM 1131 central processing unit (CPU) provides storage of data containing the completed Bilingual Education Teacher Training Program and student record data. Since the computer can record and recall student data such as number of correct answers, the number of wrong answers, and the time on-line or time to complete an instructional segment, the sequence of instruction, for a particular student, can be altered on the basis of his responses. This branching makes the instructional sequence truly individualized for each student.

Refining Objectives and Instructional Methodology

The heart of the 1974-75 Penn State-Lancaster Bilingual Education Teacher Training Program was the Computer-Assisted Bilingual/Bicultural Education Teacher Training Program. The developmental core of the CAI Program was based upon the recommendations of fourteen leaders in the field of bilingual education at a conference held at the Center for Applied Linguistics on August 5-6, 1974 (CAL, 1974, See Figure 2).

Two points were stressed throughout the development of the CAI Bilingual program: First, an extensive amount of a bilingual teacher's education should be conducted in the child's mother tongue. This is necessary to provide the teacher with the specialized vocabulatory required to present course content in the child's first language.

Figure 2

BILINGUAL TEACHER COMPETENCIES

Developmental Core

Unit I - X: At the completion of each unit, bilingual teachers will display competencies in:	GRADE LEVEL				
	I. Primary K - 3	II. Intermediate 4 - 6	III. Jr. High 7 - 9	IV. Sr. High 10 - 12	Adult Basic
I. Language Proficiency					
II. Linguistics					
III. Culture					
IV. Instructional Methods					
V. Curriculum Utilization and Adaptation					
VI. Assessment					
VII. School - Community Relations					
VIII. Supervised Teaching					
IX. Planning and Implementation					
X. Miscellaneous					

Second, the teacher education curriculum must provide for on-site training in the community very early in the program, and continue throughout the training period. The education of a bilingual teacher should extend beyond the classroom to extracurricular activities, the playground, and school programs involving the parents and the community. The developmental core of the CAI program was based on guidelines intended for the preparation and certification of preservice and inservice teachers of bilingual-bicultural education.

Personal Qualities of Bilingual Teachers. The teacher of bilingual-bicultural education should have the following qualifications:

1. A thorough knowledge of the philosophy and theory concerning bilingual-bicultural education and its application.
2. A genuine and sincere interest in the education of children regardless of their linguistic and cultural background and personal qualities which contribute to success as a classroom teacher.
3. A thorough knowledge of and proficiency in the child's home language and the ability to teach content through it; an understanding of the nature of the language the child brings with him and the ability to utilize it as a positive tool in his teaching.
4. Cultural awareness and sensitivity and a thorough knowledge of the cultures reflected in the two languages involved.
5. The proper professional and academic preparation obtained from a well-designed teacher training program in bilingual-bicultural education.

The guidelines which follow are designed to meet these necessary qualifications and describe the various academic areas considered essential in teacher training programs in bilingual-bicultural education.

Language Proficiency. The teacher should demonstrate the ability to:

1. Communicate effectively, both in speaking and understanding, in the languages and within the cultures of both the home and school. The ability will include adequate control of pronunciation, grammar, vocabulary, and regional, stylistic, and nonverbal variants appropriate to the communication context.
2. Carry out instruction in all areas of the curriculum using a standard variety of both languages.

Linguistics. The teacher should demonstrate the ability to:

1. Recognize and accept the language variety of the home and a standard variety as valid systems of communication, each with its own legitimate functions.
2. Understand basic concepts regarding the nature of language.
3. Understand the nature of bilingualism and the process of becoming bilingual.
4. Understand basic concepts regarding the natural effects of contacts between languages and the implications of this information for the instructional program.
5. Identify and understand regional, social, and developmental varieties in the child's languages at the phonological, grammatical, and lexical levels.

6. Identify and understand structural differences between the child's first and second languages, recognizing areas of potential interference and positive transfer.
7. Develop curricular activities to deal with areas of interference.
8. Understand theories of first and second language learning, differences between child and adult language learning, and their implications for the classroom.

Culture. The teacher should demonstrate the ability to:

1. Respond positively to the diversity of behavior involved in cross-cultural environments.
2. Develop awareness in the learner of the value of cultural diversity.
3. Prepare and assist children to interact successfully in a cross-cultural setting.
4. Recognize and accept different patterns of child development within and between cultures in order to formulate realistic objectives.
5. Assist children in maintaining and extending identification with and pride in their culture.
6. Understand, appreciate, and incorporate into activities, materials and other aspects of the instructional environment:
   a. The culture and history of the group's ancestry.
   b. Contributions of group to history and culture of the United States.
   c. Contemporary life style(s) of the group.

7. Recognize both the similarities and differences between Anglo-American and other cultures and both the potential conflicts and opportunities they may create for children.
8. Know the effects of cultural and socioeconomic variables on the student's learning styles (cognitive and affective) and on the student's general level of development and socialization.
9. Use current research regarding the education of children in the U. S. from diverse linguistic and cultural backgrounds.
10. Understand the effects of socioeconomic and cultural factors on the learner and the educational program.
11. Recognize differences in social structure, including familial organization and patterns of authority, and their significance for the program.

Instructional Methods. This component should enable teachers to assist students in achieving their full academic potential in the home language and culture as well as in English. To this end, the teacher is expected to demonstrate the following competencies:

1. Assist children in maintaining and extending command of the mother tongue and the second language in listening, speaking, reading, and writing.
2. Apply teaching strategies appropriate to distinct learning modes and developmental levels, including preschool, taking into consideration how differences in culture affect these and other learning variables.

3. Organize, plan and teach specific lessons in the required curriculum areas, using the appropriate terminology in the learner's language(s) and observing the local district's curriculum guidelines. Basic elements and methodologies best suited to the teaching of reading and language arts, mathematics, social studies and science, as a minimum, must be identified and applied in the learner's language(s).
4. Utilize innovative techniques effectively and appropriately in the learner's language(s) in the various content areas, namely:
   a. Formulation of realistic performance objectives and their assessment.
   b. Inquiry/discovery strategies.
   c. Individualized instruction.
   d. Learning centers.
   e. Uses of media and audio visual materials.
   f. Systems approaches to the teaching of reading and mathematics skills.
   g. Team teaching and cross grouping.
   h. Interaction analysis.
5. Develop an awareness of the way in which learner's culture should permeate significant areas of the curriculum.
6. Utilize first and/or second-language technique in accordance with the learner's needs at various stages of the learning process.

7. Utilize effective classroom management techniques, for optimal learning in specific situations.
8. Work effectively with paraprofessionals and other adults.
9. Identify and utilize available community resources and outside the classroom.

Curriculum Utilization and Adaptation. The teacher should demonstrate the ability to:

1. Identify current biases and deficiencies in existing curriculum and in both commerical and teacher-prepared materials of instruction. Materials should be evaluated in accordance with the following criteria:
   a. Suitability to students' language proficiencies and cultural experiences.
   b. Provision and respect for linguistic and cultural diversity.
   c. Objectives, scope, and sequence of the materials in terms of content areas.
   d. Students' reaction to materials.
2. Acquire, evaluate, adapt, and develop materials appropriate to the bilingual-bicultural classroom.

Assessment

General. The teacher should demonstrate the ability to:

1. Recognize potential linguistic and cultural biases of existing assessment instruments and procedures when prescribing a program for the learner.

2. Utilize continuous assessment as part of the learning process.
3. Interpret diagnostic data for the purpose of prescribing instructional programs for the individual.
4. Use assessment data as basis for program planning and implementations.

Language. The teacher should demonstrate the ability to:

1. Determine language dominance of the learner in various domains of language use - oral and written.
2. Use assessment results to determine teaching strategies for each learner.
3. Identify areas of proficiency (oral and written: vocabulary, syntax, phonology) in the learner's first and second language.
4. Assess maintenance and extension levels of the learner's language(s).

Content. The teacher should demonstrate the ability to:

1. Evaluate growth, using teacher-prepared as well as standard instruments, in cognitive skills and knowledge of content areas, utilizing the language of the home.
2. Assess accuracy and relevance of materials utilized in the classroom.
3. Prepare tests to evaluate achievement of proposed objectives of instruction.

Self. The teacher should demonstrate the ability to identify and apply procedures for the assessment of:

1. Own strengths and weaknesses as a bilingual teacher.

2. Own value system as it relates to the learner, his behavior, and his background.
3. The effectiveness of own strategies.

School-Community Relations. Current trends in education have specifically identified the significant role of the community in the educational process. The knowledge that the community has goals and expectations creates for the schools the need to include, integrate and enhance those expectations into the regular school program.

Bilingual education offers distinct opportunities to bridge the structural and cultural gap between school and community. The school with a bilingual-bicultural education program should serve as a catalyst for the integration of diverse cultures within the community.

The teacher should demonstrate the following competencies:

1. Develop basic awareness concerning the importance of parental and community involvement for facilitating the learner's successful integration to his school environment.
2. Acquire skills to facilitate the basic contacts and interaction between the learners' families and the school personnel.
3. Demonstrate leadership in establishing home/community exchange of sociocultural information which can enrich the learner's instructional activities.
4. Acquire, and develop, skills in collecting culturally relevant information and materials characteristic of both the historical and current life-styles of the learners' culture(s) that can serve both as curriculum contents and for instructional activities.

5. Acquire a knowledge of the patterns of child rearing represented in the families of the learners so as to better understand the background of the learners' behaviors in the classroom.
6. Act as facilitator for enhancing the parents' roles, functions and responsibilities in the school and community.
7. Serve as a facilitator for the exchange of information and views concerning the rationale, goals, and procedures for the instructional programs of the school.
8. To plan for and provide the direct participation of the learners' family in the regular instructional programs and activities.

Supervised Teaching

Because of the great disparity between theory presented in the context of a college environment and practical teaching realities in a bilingual-bicultural classroom setting, it is essential that a portion of every teacher's training experience include on-site, supervised teaching experience in a bilingual-bicultural program. To the extent possible, relevant competencies should be demonstrated in the direct context of such a classroom setting.

As authors and staff worked on the ten originally proposed competencies (Figure 2) it became apparent that ten units were more than was needed. Control over the program could be managed with fewer units and realistically attainable objectives.

Final Developmental Outline and Procedures

By mid-winter of 1975, it became apparent that the original five-year developmental plan for a Computer-Assisted Bilingual Educa-

tion Teacher Training Program was no longer feasible. An alternative plan was determined: the program would consist of four units for teachers of Puerto Rican children and a flowchart for a model CAI unit was devised (Figure 3).

The four units selected for the final program were:

I. Language Teaching in Bilingual Education.

II. Culture and Community in Bilingual Education.

III. Curriculum and Instruction in Bilingual Education.

IV. Assessment in Bilingual Education.

The following outline describes the content of each unit:

Unit I: Language Teaching in Bilingual Education

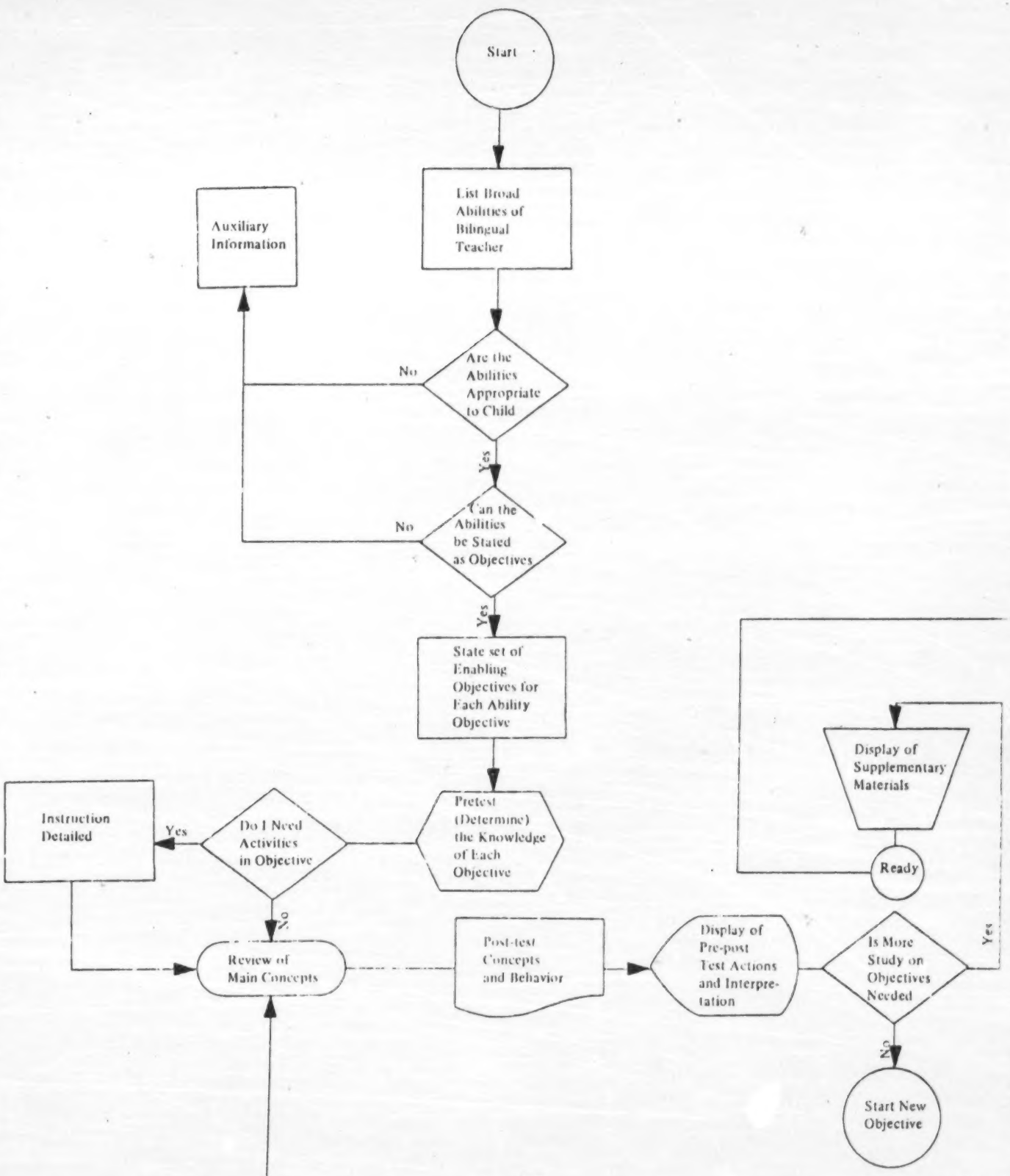
- Chapter 1: Bilingual Education, Language Acquisition, and Language Maintenance
- Chapter 2: Language Variations as Communication Systems
- Chapter 3: Bilingual Language Learning in Classroom Setting
- Chapter 4: English as a Second Language, Interference, and Transfer Principles

Unit II: Culture and Community in Bilingual Education

- Chapter 1: Current Research Related to Understanding Children in Bilingual Education Program
- Chapter 2: Diversity of Behavior in Culturally Diverse Children
- Chapter 3: Contact Between Bilingual Families and the School
- Chapter 4: Formulating Teaching Objectives Unique to Cultural Pluralism

Figure 3

Flowchart for a Model CAI Unit



Unit III: Curriculum and Instruction in Bilingual Education

Chapter 1: Learning Styles of Puerto Rican Children

Chapter 2: Competency-Based Bilingual Education Curriculum Development

Chapter 3: Developing and Teaching Parallel Curriculum in Content Areas

Chapter 4: Spanish and English Reading Instruction in Bilingual Education

Unit IV: Assessment in Bilingual Education

Chapter 1: What is Educational Assessment in Bilingual Education?

Chapter 2: Individual Assessment Instruments

Chapter 3: Cultural Bias in Assessment

Chapter 4: Assessing Individual Performance in Cognitive or Content Areas

Chapter 5: Assessment as it Relates to Program Planning, Implementation, and Evaluation

Each chapter of the program described above has been developed along a diagnostic prescriptive model of teaching (Figure 4). By reducing the number of units in the program, it was possible to consolidate the objectives to fit a competency-based format for bilingual education teacher training.

Task Assignments and Personnel

In a project as innovative as a Computer-Assisted Bilingual Education Teacher Training Program, it was necessary to recruit and train

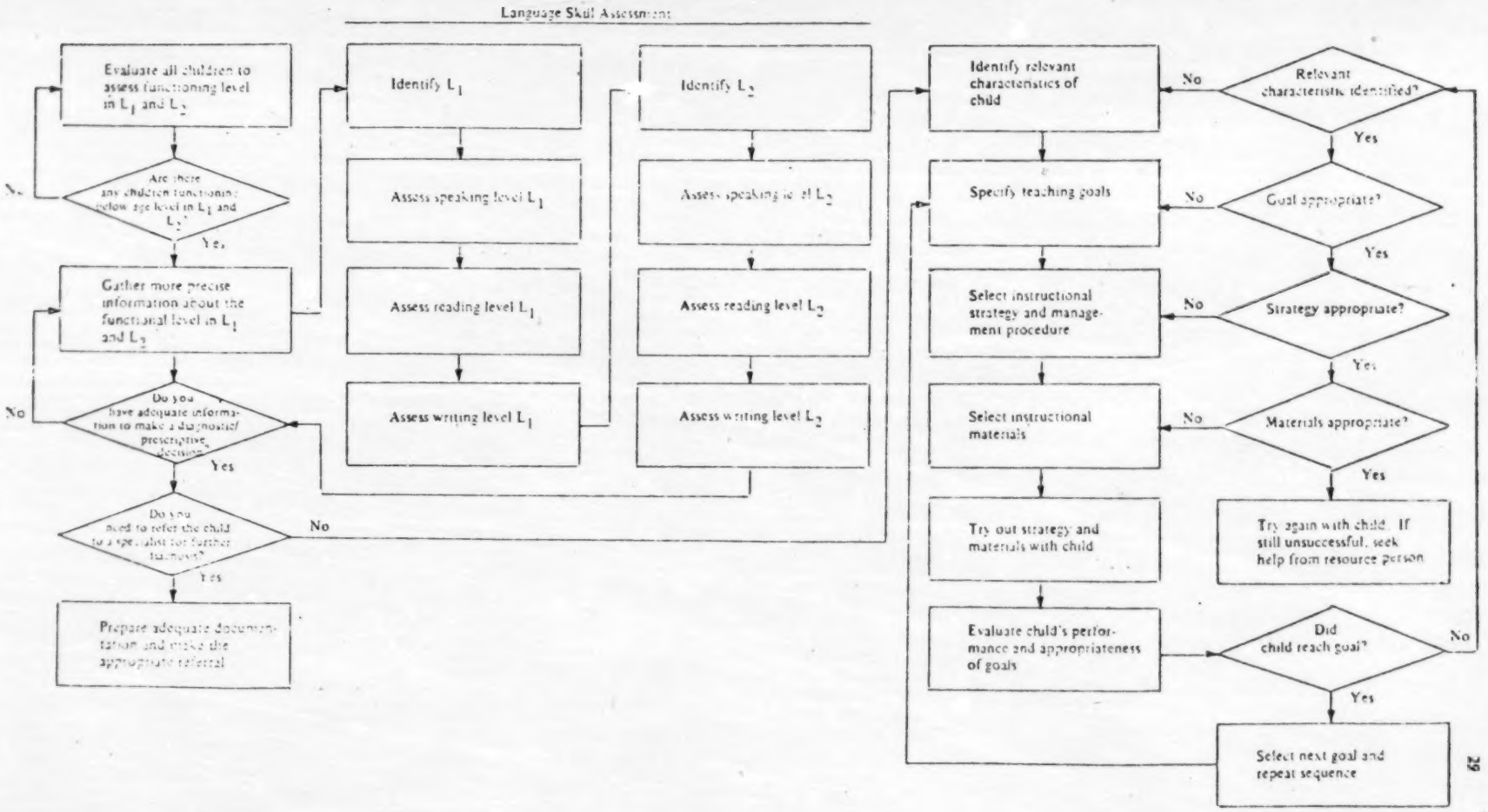

DECISION MODEL I IDENTIFIES SPANISH (L1) MAINTENANCE AND ENGLISH(L2) ACQUISITION
Language Skill Assessment
Evaluate all children to assess functioning level in L1 and L2
Are there any children functioning below age level in L1 and L2?
No
Yes
Gather more precise information about the functional level in L1 and L2
Do you have adequate information to make a diagnostic/prescriptive decision?
No
Yes
Do you need to refer the child to a specialist for further treatment?
No
Yes
Prepare adequate documentation and make the appropriate referral
Identify L1
Assess speaking level L1
Assess reading level L1
Assess writing level L1
Identify L2
Assess speaking level L2
Assess reading level L2
Assess writing level L2
DECISION MODEL II DIAGNOSTIC PRESCRIPTIVE TEACHING
Identify relevant characteristics of child
No
Relevant characteristic identified?
Yes
Specify teaching goals
No
Goal appropriate?
Yes
Select instructional strategy and management procedure
No
Strategy appropriate?
Yes
Select instructional materials
No
Materials appropriate?
Yes
Try out strategy and materials with child
Try again with child. If still unsuccessful, seek help from resource person
Evaluate child's performance and appropriateness of goals
Did child reach goal?
No
Yes
Select next goal and repeat sequence

Figure 4. Diagnostic Prescriptive Model of Teaching

highly competent individuals. The following represents the list of persons who made some contribution to each of the four units of the program.

Unit I: Language Teaching in Bilingual Education

Lester S. Golub, Professor of Language Education and Director, Bilingual Education Teacher Trainer Program

Carol Puhl, Graduate Assistant

Robert Goslin, Graduate Assistant

Unit II: Culture and Community in Bilingual Education

Jane Singh, Associate Professor of Education

Ricardo Garcia, Graduate Assistant

M. Teresa Alemany, Graduate Assistant

Unit III: Curriculum and Instruction in Bilingual Education

Lester S. Golub, Professor of Education

Walter Del Aguila, Graduate Assistant

Marilyn McDivitt, Graduate Assistant

Zane Lubaus, Graduate Assistant

Unit IV: Assessment in Bilingual Education

Jack Barnette, Assistant Professor of Education

Consuelo Perignat, Graduate Assistant

Robert Goslin, Graduate Assistant

Information and Bibliography Specialist:

Marilyn McDivitt, Graduate Assistant

Program Coordinator:

Lester S. Golub, Director, CAI Bilingual Education Teacher Training Program

Computer Assisted Instruction Laboratory Staff:

Keith Hall, Director, CAI Laboratory

Michael Szabo, Assistant Director, CAI Laboratory

Evaluation

Formative and summative evaluation of the Computer-Assisted Bilingual Education Teacher Training Program has not been accomplished due to lack of funds and program development time.

CHAPTER FOUR

SUMMARY AND RECOMMENDATIONS

Summary

The purpose of this project was two fold:

1. To provide the School District of Lancaster with an inservice program for teachers in the Bilingual Education Program.
2. To develop a Computer-Assisted Bilingual Education Teacher Training Program.

The program which had originally been proposed as a five-year program was reduced to a one-year program with a six-month extension.

The on-site and summer workshops were extremely successful with observable changes in teacher behavior and attitudes taking place in the classroom.

The Computer-Assisted Bilingual Education Teacher Training Program has been developed containing four units: (1) Language Teaching in Bilingual Education, (2) Culture and Community in Bilingual Education, (3) Curriculum and Instruction in Bilingual Education, and (4) Assessment in Bilingual Education. Funds have not been available for the formative and summative evaluation of this program.

Some Positive Outcomes and Products

A project as innovative and unique as the Penn State-Lancaster Bilingual Education Teacher Education Program is bound to have its valuable outcomes as well as some disappointments. The following is a list of positive outcomes and products for the program:

1. The bilingual teachers of the School District of Lancaster have been unified as a professional group working for common goals and purposes.
2. The bilingual classrooms and teacher behaviors are now well organized with reliable classroom environments and classroom teaching techniques being established for the Lancaster Bilingual Education Program.
3. Bilingual reading in English and Spanish has become a focal point for all bilingual teachers.
4. An assessment procedure is being developed throughout the bilingual education program.
5. Parallel curriculum, competency-based, is being established in English and Spanish which is taken from the Lancaster course study, K-6.
6. A bilingual resource center has been established at the Price School with one teacher given time to organize and order materials.
7. A bilingual counsellor and a bilingual curriculum director are new additions to the Lancaster Bilingual Education staff.
8. The School District of Lancaster and the Lancaster-Lebanon, Intermediate Unit 13, are working cooperatively in the Bilingual Education Program.
9. An evaluation design and procedure of the Lancaster Bilingual Education Program, instructional component, is now in progress.

10. An extensive Computer-Assisted Bilingual Education Teacher Training Program has authored and programmed and is ready for formative and summative evaluation.

Some Recommendations

1. Bilingual teachers and programs need the input of a professional university staff.
2. Bilingual certification and teacher training programs are necessary for the continuation of bilingual education in the school.
3. Funds are necessary for the completion and evaluation of the Computer-Assisted Bilingual Education Teacher Training Program.
4. Funds are necessary to bring the CAI Bilingual Education Teacher Training Program to participating bilingual education teachers.
5. An updated and accessible method of delivering the Computer-Assisted Bilingual Education Teacher Training Program is needed.

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APPENDIX A

RESUMÉ OF RESULTS

Penn State Questionnaire
Bilingual Education Teacher Training Program

RESUME OF RESULTS

Penn State Questionnaire
Bilingual Education Teacher Training Program

I. List three (3) aspects of the Penn State Bilingual Education Teacher Training that you liked:

1. In my opinion the entire program was adequate.
2. The instructors have all been very sensitive, understanding, friendly, and competent in their fields.
3. Being with my fellow workers and getting to know them better in a situation related to our profession.
4. Reading the material about studies and research in bilingual education.
5. The teaching of setting up of bilingual learning centers.
6. Participating in the Computer Assisted Instruction Laboratory and following examples.
7. Bilingual taping of students.
8. The flexibility of instructors and the fact that they took an interest in our classrooms and came to visit.
9. Opportunity to do independent study.

II. List three (3) aspects of the Penn State Bilingual Education Teacher Training Program that you disliked:

1. None.
2. I am always so tired at the end of the session.

3. I wish the Penn State Staff were directly involved in bilingual education in the classroom.
4. Not all materials are relevant to my needs.
5. Following outlines in analyzing the tapes we did of the children in the classroom.
6. More specific ideas exchanged among ourselves like the presentation Lydia Mellinger made on teaching Spanish reading.
7. A little more help on our individualized projects.
8. Repetition of some material we had already studied.
9. Need for more native Puerto Rican bilingual teachers in the Penn State program.

III. Suggestions for changes in conducting this program next year:

1. Zero in and carry out in depth one or two aspects of our program.
2. Divide us in interest groups.
3. Let's sing together.
4. Teach us how to take care of behavioral problems.
5. Bring in more resource people.
6. More individualization of program.
7. More information about handling bilingual classrooms.
8. More time in actual classroom situations.
9. Aspects of Puerto Rican culture.

IV. Are you satisfied with the course offerings?

9 YES

1 NO (This person had an unfortunate accreditation experience)

V. What course would you suggest that will best needs of our program?

1. How to help students become self-motivators and how to assimilate students into the whole school system.
2. Reading and culture courses.
3. Individualizing group work in curriculum planning and testing.
4. Testing and evaluation.
5. Learning centers.
6. Teaching reading in Spanish.

VI. What do you want the Penn State Bilingual Education program to do for Lancaster in the way of testing?

1. Special testing in Spanish should be devised for the children who come directly to the mainland.
2. Instruction on how to give tests in Spanish and English.
3. Easily administered reading tests in English and Spanish.
4. Junior high school science tests in Spanish and English.
5. Spanish version of the Metropolitan Readiness Test.
6. Construction of pre- and post-tests in subject areas, especially social studies and science.
7. Placement tests for all levels of bilingual education.
8. Develop a bilingual math test.
9. Spanish reading and comprehension test?
10. Bilingual test for subject areas.
11. Interpretation of test scores.

VII. Other Comments on the Program

1. Being new to the Bilingual Education Program, I found last year's program most helpful.
2. What a pleasure to have joined up with a great bunch of people from Penn State. I think they are very interested in helping us to make this program a success. Never in my life have I heard of such a program being offered through a school district, and I must admit I'm proud to be a part of this one.
3. I want to thank everyone who made it possible and who worked so hard to help us.

APPENDIX B

A LIST OF CHANGES IN THE LANCASTER BILINGUAL EDUCATION PROGRAM

A LIST OF CHANGES IN THE LANCASTER
BILINGUAL EDUCATION PROGRAM

1. Bilingual teachers are now a cohesive group working toward common goals and objectives.
2. Bilingual teachers have good control of amount and strategies of teaching in two languages.
3. A bilingual curriculum materials center has been established in the district and a bilingual curriculum specialist is engaged in curriculum development and acquisition.
4. Bilingual counsellors are available in bilingual schools in the district, particularly the high school.
5. Large numbers of Puerto Rican students are entering and graduating from high school.
6. The administration is interested in maintaining a successful bilingual education program.
7. Testing and placement instruments are being developed to satisfy needs of Puerto Rican students.